Document Title : Fluwatch: Overall influenza summary

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FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

May 21 to June 17, 2017 (Weeks 21-24)

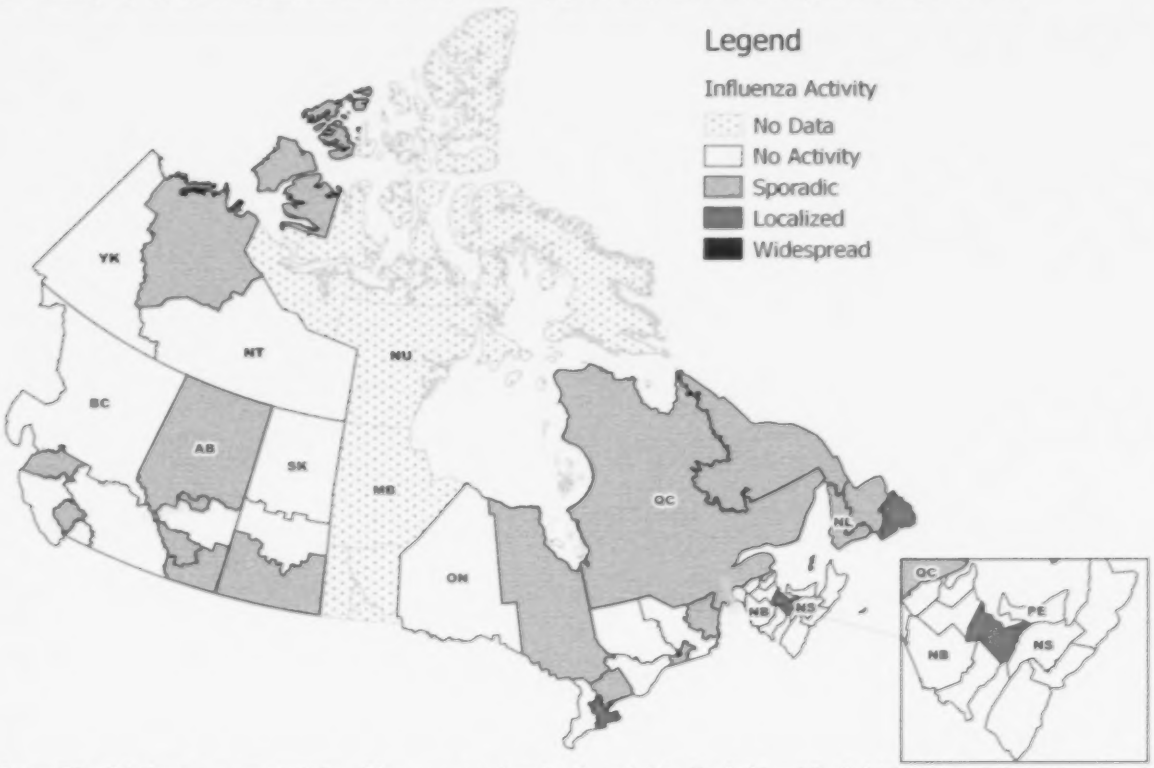
Overall Summary

- Influenza activity has crossed the seasonal threshold indicating the end of the 2016-17 influenza season, although regions across the country continue to report low-level circulation of influenza.
- In weeks 21-24, influenza B continued to be the predominant circulating influenza virus in Canada. The majority of influenza B viruses characterized this season are similar to the strain included only in the quadrivalent influenza vaccine for 2016-17.
- FluWatch will publish monthly reports over the summer. The next report will be published on July 28, 2017. We continue to monitor influenza and other respiratory infections via the RVDSS report, published every Thursday.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In weeks 21-24, influenza or influenza-like illness activity levels continued to decline with an increasing number of regions reporting no activity. In week 24, three regions in three provinces reported localized activity, and 17 regions across seven provinces and territories reported sporadic activity. For more details on a specific region, click on the map.

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 24

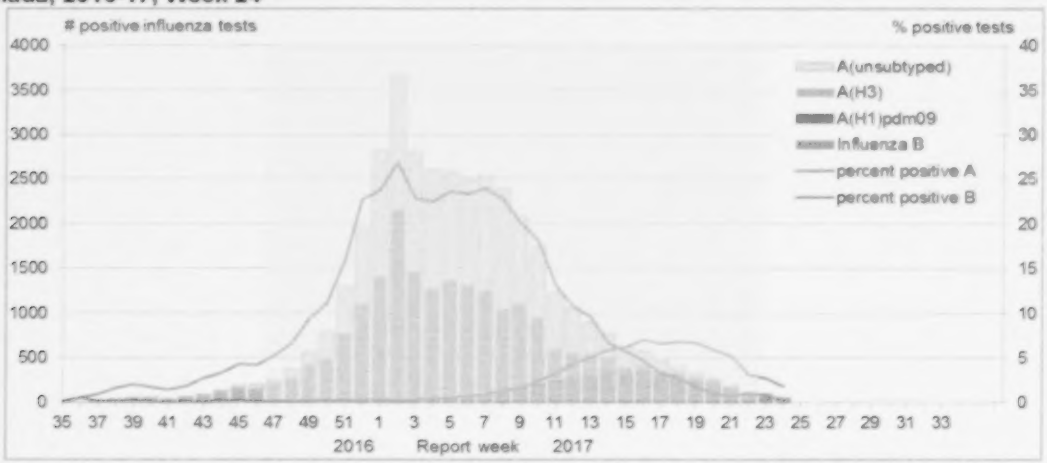


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

In weeks 21-24, the number of tests positive for influenza continued to decrease, and the percentage of tests positive declined from 6% in week 21 to 2% in week 24, crossing the seasonal threshold of 5%. This indicates the end of the 2016-17 influenza season in Canada. Influenza B remained the most common type of influenza detected in weeks 21-24, representing between 75-85% of weekly detections during this period. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

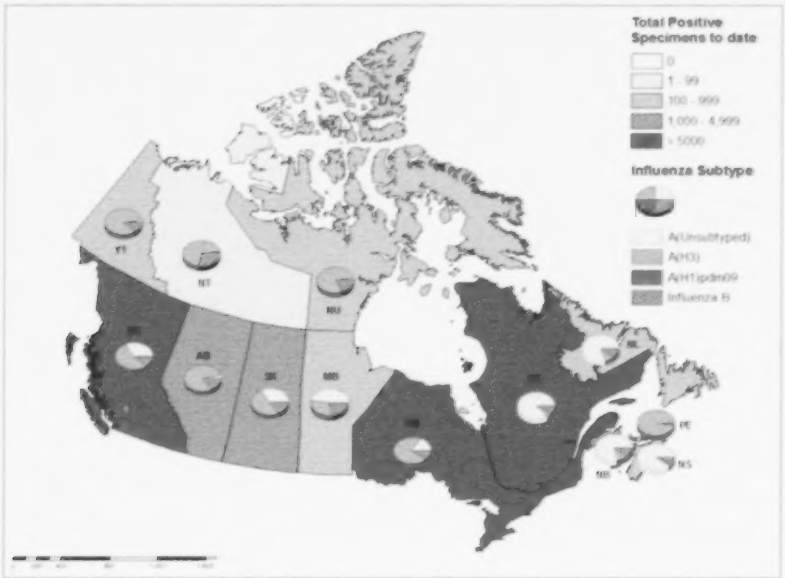
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 24



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

To date this season, 39,047 laboratory-confirmed influenza detections have been reported, of which 89% have been influenza A. Influenza A(H3N2) has been the most common subtype detected this season, representing over 99% of influenza A detections. For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 24



To date this season, detailed information on age and type/subtype has been received for 26,897 laboratory-confirmed influenza cases (Table 1). Among cases with reported age and type/subtype information, adults aged 65+ accounted for nearly half of the reported influenza cases. Adults aged 65+ have predominantly been affected by influenza A accounting for 51% of influenza A detections. Influenza B, while much smaller in number, is mainly affecting individuals less than 65 years of age.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 24

Age groups (years)	Weeks (May 21, 2017 to June 17, 2017)					Cumulative (August 28, 2016 to June 17, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	<5	0	<5	<5	17	2249	20	832	1397	259	2508	9%
5-19	<5	0	<5	<5	46	2219	18	1078	1123	486	2705	10%
20-44	<5	0	<5	<5	23	3442	36	1803	1603	496	3938	15%
45-64	24	5	13	6	39	3941	31	1967	1943	648	4589	17%
65+	18	<5	10	6	72	12109	24	5450	6635	1048	13157	49%
Total	>45	>5	26	19	197	23960	129	11130	12701	2937	26897	100%
Percentage[2]	21%	13%	50%	37%	79%	89%	1%	46%	53%	11%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
x - Supressed to prevent residual disclosure
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

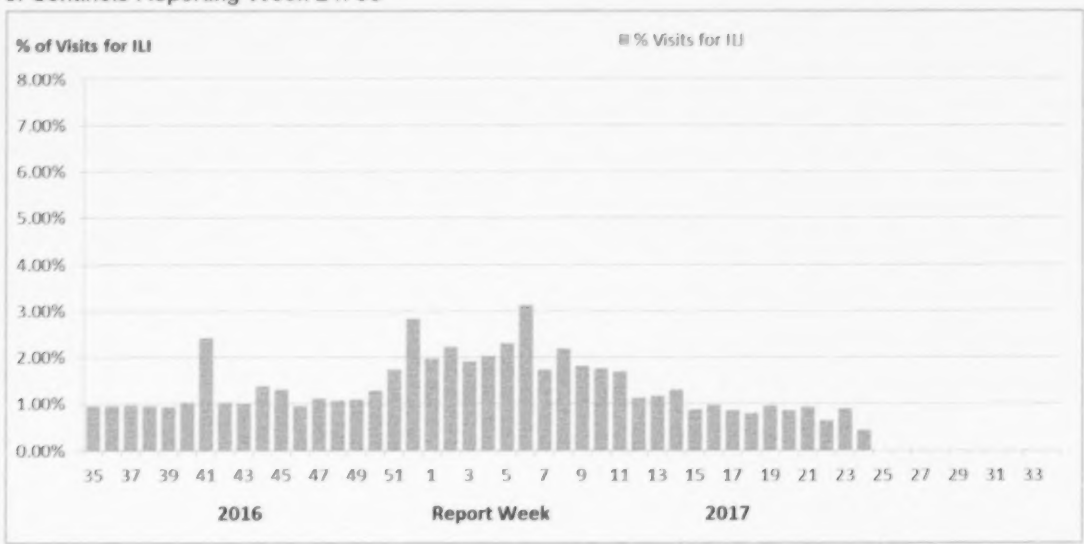
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 24, 0.4% of visits to healthcare professionals were due to influenza-like illness.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 24: 93



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

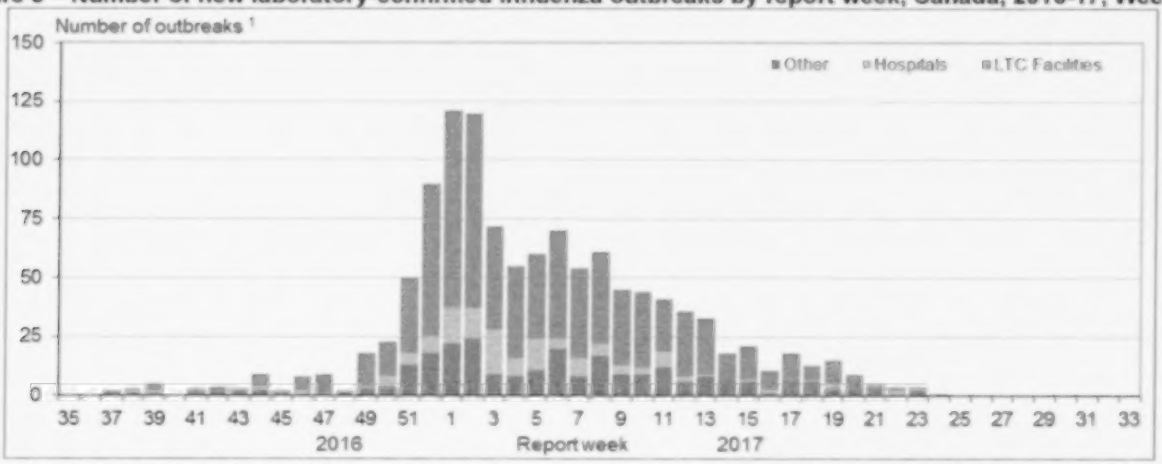
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

During the period of weeks 21-24, 14 laboratory-confirmed influenza outbreaks were reported, of which 8 were in long-term care facilities, three were in hospitals, and three were in other settings.

To date this season, 1,190 outbreaks have been reported and the majority (66%) have occurred in LTC facilities. A total of 87 outbreaks (7%) due to influenza B have been reported. Compared to the same period in the most recent previous A(H3N2)-predominant season (2014-15), 1,732 outbreaks were reported, of which 74% occurred in LTC facilities.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 24



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

During the period of weeks 21-24, the number of weekly influenza-associated hospitalizations reported by participating provinces and territories* fell by more than half. In week 24, 20 hospitalizations were reported, of which 12 were associated with influenza B and 55% occurred in adults 65+. Nine intensive care unit (ICU) admissions and 13 deaths were reported between weeks 21-24.

To date this season, 6,486 hospitalizations have been reported, of which 87% were due to influenza A. Among cases for which the subtype of influenza A was reported, 99% were influenza A(H3N2). Adults 65+ accounted for 67% of the hospitalizations. A total of 268 ICU admissions and 384 deaths have been reported. The majority of deaths (88%) were reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 24

Age Groups (years)	Cumulative (August 28, 2016 to June 17, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	445	92	537 (8%)	19	7%	<5	x%
5-19	241	96	337 (5%)	20	7%	<5	x%
20-44	294	51	345 (5%)	27	10%	5	1%
45-64	764	139	903 (14%)	82	31%	37	10%
65+	3949	415	4364 (67%)	120	45%	337	88%
Total	5693	793	6486 (99%)	268	100%	384	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

Pediatric Influenza Hospitalizations and Deaths

In weeks 21-24, 14 laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. Nine of the 14 hospitalizations were associated with influenza B.

To date this season, 586 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 37% of hospitalizations and influenza A accounted for 79% of the reported hospitalizations. Among the 126 hospitalizations due to influenza B, 68 (54%) were in children over the age of 5 years. In comparison, children over the age of 5 years accounted for 33% of influenza A hospitalizations. Additionally, 97 intensive care unit (ICU) admissions have been reported. A total of 65 ICU cases (67%) reported at least one underlying condition or comorbidity. Less than five deaths have been reported this season.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 24

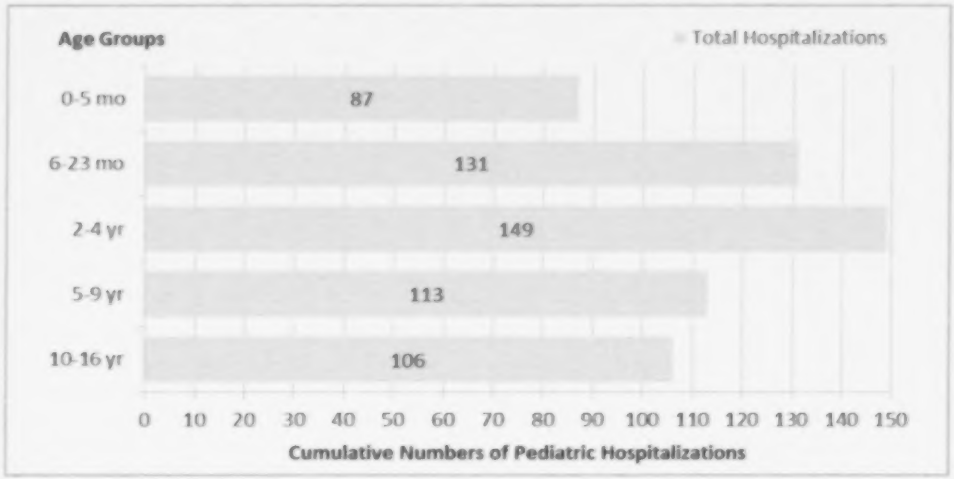


Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 24

The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

Surveillance for the 2016-2017 influenza season ended on April 30th, 2017.

This season, 1,535 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. Influenza A accounted for 92% of hospitalizations. Adults aged 65+ accounted for 78% of hospitalizations. A total of 143 intensive care unit (ICU) admissions have been reported. Among ICU cases with available data, 126 cases (88%) reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 71 years. Approximately 86 deaths have been reported this season, the majority in adults aged 65+. The median age of reported deaths was 85 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 20

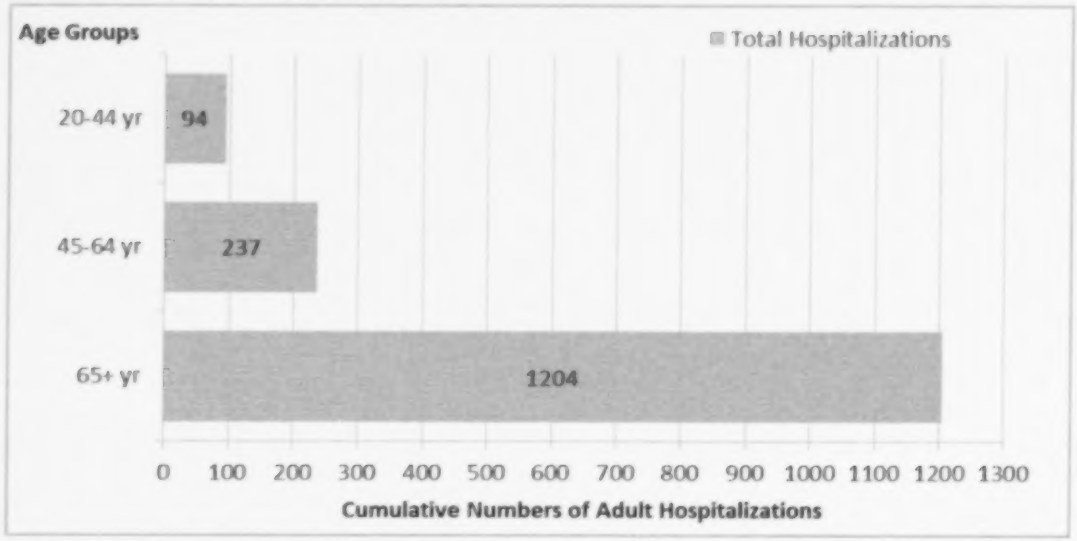
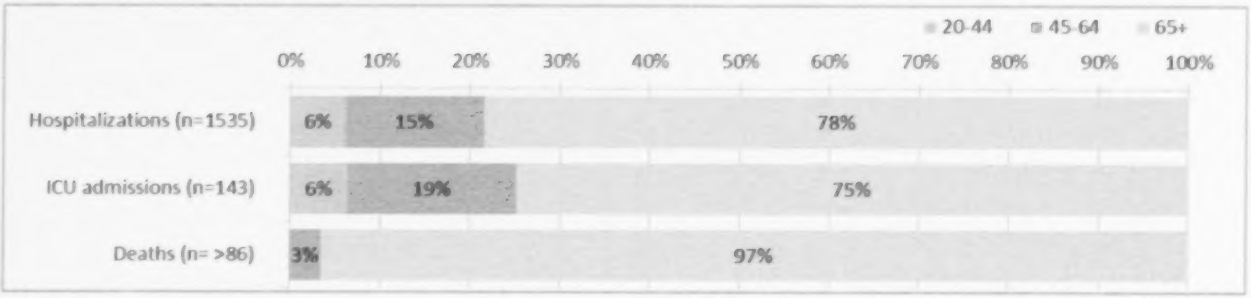


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 20



The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 2,244 influenza viruses [1,614 A(H3N2), 56 A(H1N1), 565 influenza B]. All seasonal influenza A viruses and 20% of influenza B viruses characterized were antigenically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. Eighty percent of influenza B viruses characterized were similar to the strain which is only included in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 24

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	390	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	1223	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, one virus belonged to genetic group 3C.3a. Genetic characterization of the 390 influenza A (H3N2) viruses that underwent HI testing determined that 325 viruses belonged to genetic group 3C.2a and 65 viruses belonged to genetic group 3C.3a. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/20143[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	56	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	111	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	454	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1]The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2]Determined by sequence analysis.
[3]WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.
[4]Detected in epidemiological week 50. For more details, see Week 50 report.

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 1,218 influenza viruses for resistance to oseltamivir, 1,218 influenza viruses for resistance to zanamivir and 266 influenza viruses for resistance to amantadine. All but two influenza A(H3N2) viruses and one of the A(H1N1) viruses were sensitive to oseltamivir and all viruses were sensitive to zanamivir. All 266 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 24

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	756	2 (0.3%)	755	0 (0%)	215	215 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	50	1 (2%)	49	0 (0%)	50	50 (100%)
B	411	0 (0%)	413	0 (0%)	NA[1]	NA[1]
TOTAL	1218	3 (0.2%)	1218	0 (0%)	266	266 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – Influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.